

# Lac insects (Homoptera: Lacciferidae) from South Africa

by

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In his monograph on the lac insects Chamberlin (1923) erected the tribe Tachardinini with the genus *Tachardina* Ckll. and two subgenera *Tachardina* Ckll. and *Afrotachardina* Chamb. In his remarks on the genus he says: "In spite of the general homogeneity of the genus there is a wide range of variation in certain of its features, and consequently it is found to break up into a number of more or less well-marked groups and subgenera. However, the number of species so far known, is too few to permit the arrangement of the subdivisions in really satisfactory form, and until more collecting is done the arrangement here given must be regarded as more or less provisional." Later (1925) he raised *Afrotachardina* to generic rank. In 1950, Balachowsky erected the genus *Paratachardina* with *Carteria decorella* Mask. as type for one of Chamberlin's "groups", and gave a key for separating these genera.

Over the years material has been accumulating in the collection of the Plant Protection Research Institute, an examination of which indicates that there is considerable variation in the lac insects, for example, in certain species where leg vestiges are normally absent, some specimens may be found with one or more present; also the length of the brachiae has been found to vary considerably with the age of the insect, and in other cases the tests of various "species" are clearly distinguishable, but no constant morphological differences are apparent. In the present paper three of the most clearly distinguishable species of the material at hand are described as new, one is redescribed and one refigured.

To ensure clarity in the descriptions the marginal duct clusters have been numbered, the most anterior pair being the first pair, the pair anterior to the anterior spiracles the second, the pair posterior to the spiracles the third, and so on, up to the last pair which in all species dealt with here is the eighth. Ventral duct clusters take the same number as the marginal cluster with which they are associated. On the periphery of each marginal cluster there is a regular or irregular arc of smaller ducts which enclose the former laterally and sometimes form an irregular row through the pleural to the dorsal area of the body; they differ from the others of the marginal clusters in that no spermatozoid ducts arise from their external rim. These are here termed the peripheral ducts of the marginal clusters or for brevity, simply peripheral ducts. In some species there are two ovate duct

clusters at the base of the supra-anal plate which were termed by Chamberlin (1923: 202) "tubercle pore clusters" — this term is here retained.

Where the variation in the number of ducts in the marginal and ventral clusters is given, that of the marginal clusters is given first, followed by that of the ventral clusters in parentheses; figures for the marginal groups exclude the peripheral ducts.

Holotypes and paratypes are deposited in the National Collection of Insects, Pretoria; other paratypes will be deposited in the British Museum (Nat. Hist.), London and in the United States National Museum, Washington.

*Tachardina affluens* Brain, fig. 1

**Tachardina affluens** Brain, 1920, *Bull. ent. Res.* **10**: 125; Chamberlin, 1923: 206; Hall, 1935: 483.

"Tests of adult ♀♀ usually found singly on the stems of host plants; occasionally in groups of two or three, never in large groups. Test  $\pm$  globular, almost as deep as wide, sometimes slightly tapering to the top, about 3 mm. in diameter, yellowish to dull shellac-brown with a reddish spot in the centre. The test is generally smooth but may show indications of faint ridges to the margins, which are prominent in young specimens. ♂ puparium exceptionally long and narrow, pale yellowish brown, with reddish larval cast; posterior aperture closed by a rough buff flap". (Brain, l.c.).

Antennae with uncertain number of segments. Brachiae 286-530  $\mu$  in length; brachial plates subtriangular in shape, length 109-134  $\mu$ , width 102-114  $\mu$ , pseudospines number from 44-50. Anterior spiracles with 56-75 quinquelocular pores, posterior spiracles with 10-14. Dorsal spine present, 119-134  $\mu$  in length, not elevated on a membranous pedicel. Leg vestiges and mediodorsal sclerites absent. Marginal and ventral duct clusters present in eight pairs with the following ducts per clusters I 30-45 (20-32), II 22-34 (11-27), III 20-42 (28-36), IV 25-37 (15-23), V 25-31 (8-17), VI 26-38 (11-21), VII 30-41 (11-16), VIII 26-35 (4-11); some ducts in each marginal cluster fused and surrounded by a conspicuous sclerotic area; peripheral ducts few in number forming an irregular arc, always occurring singly, never in groups as in *T. digitata*, scattered in an irregular row through the pleural to the dorsal area of body. Membranous digitate processes anterior to the anal tubercle absent. Supra-anal plate 153-165  $\mu$  in length and 170-185  $\mu$  in width. Tubercle pore clusters present; anal fringe truncate, with two lobes on either side of the median cleft. Longitudinal chitinous processes in pygidial area and pores associated therewith absent in mature adult female.

*Material examined*: Hammanskraal (Pretoria Distr., Tvl.), 4.V.1964, on *Euclea undulata* Thunb. var. *undulata* (Ebenaceae), leg. J. Munting (H. C. 1501\*); Hartbeespoort Dam (Pretoria Distr., Tvl.), no date, on *E. crispa* (Thunb.) Guericke

\* ) H.C. numbers refer to the Coccoid accession numbers of the National Collection of Insects.

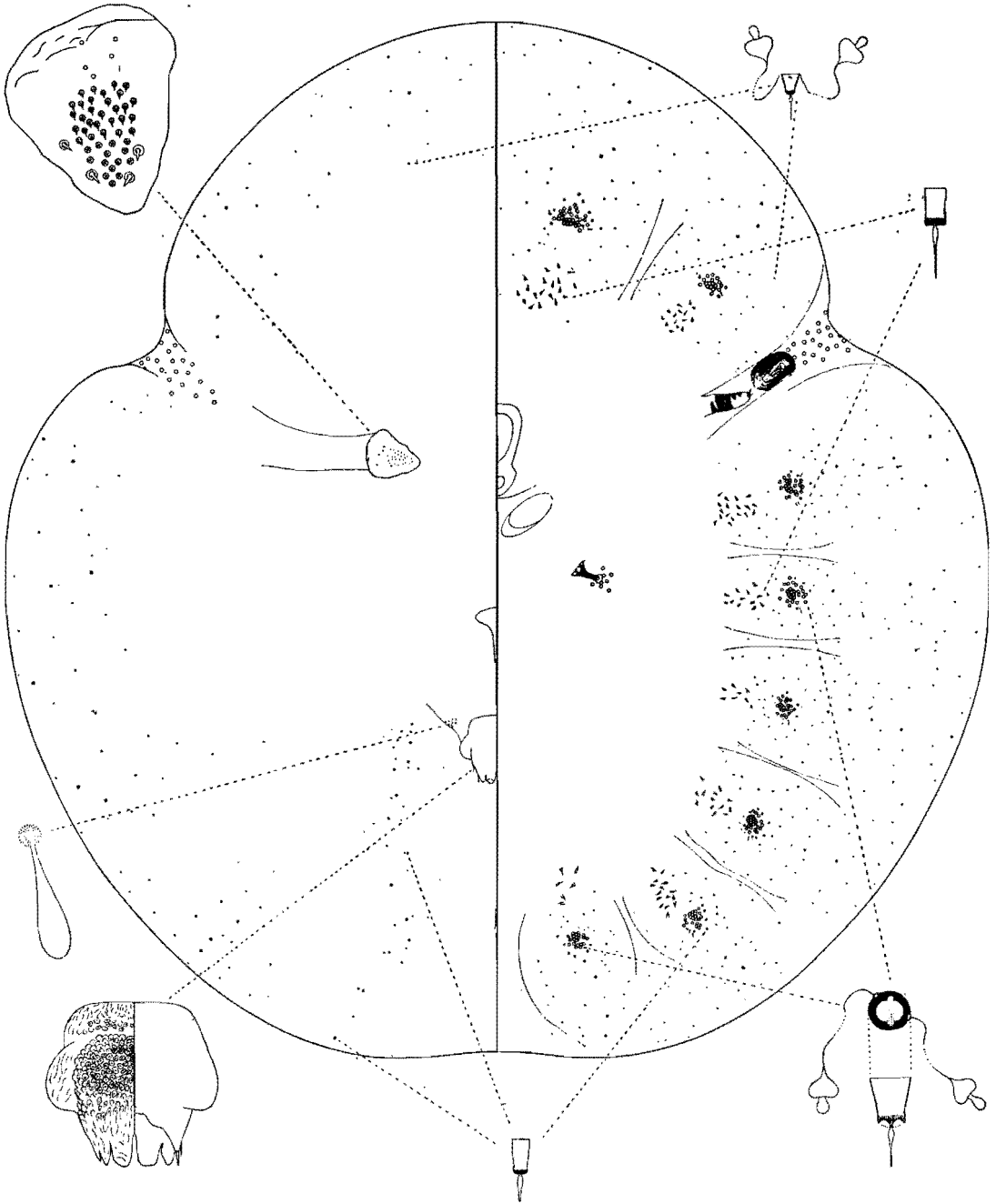
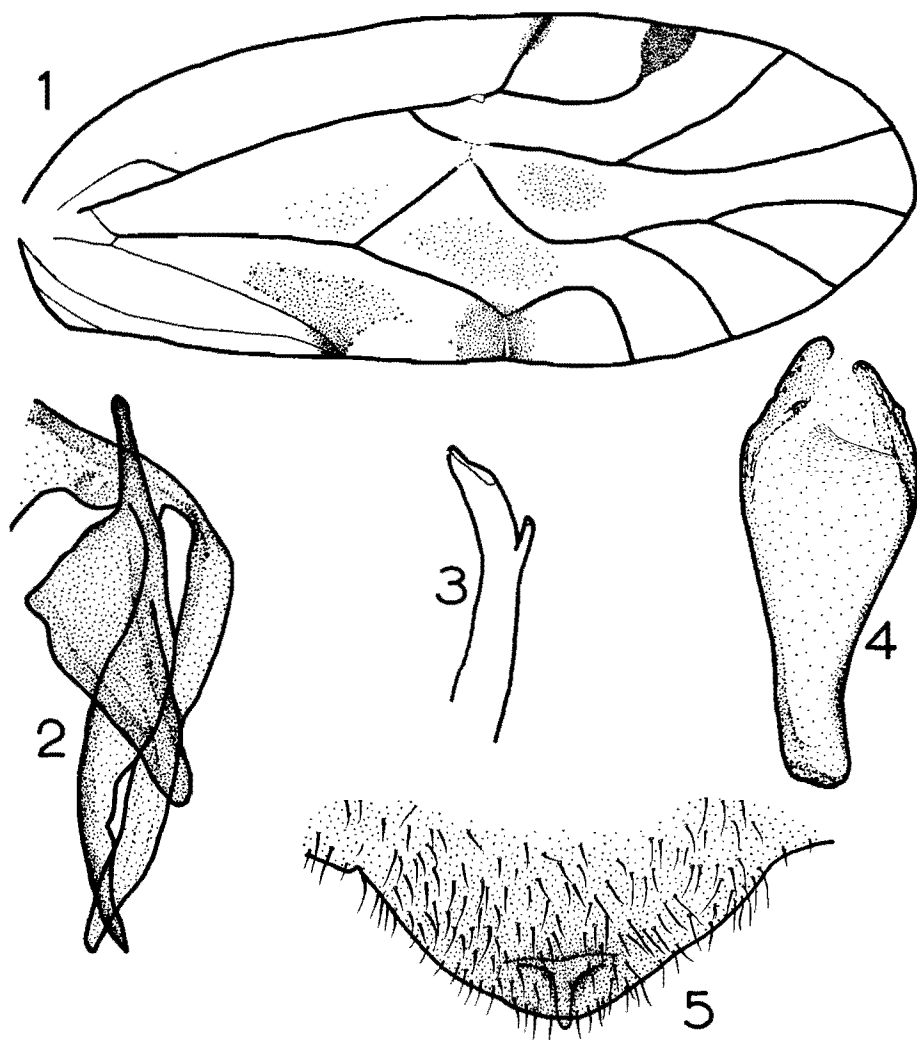


Fig. 1. *Tachardina affluens* Brain.



Figs. 1-3. *Manicapsocus alettae* gen. et spec. nov. 1. Forewing; 2. gonapophyses; 3. lacinia.

Fig. 4. *Stimulopalpus africanus* Enderlein, phallosome.

Fig. 5. *Manicapsocus alettae* gen. et spec. nov., subgenital plate.

Ocelli pale. Maxillary palpi brown, the apex of each segment paler. Mesothorax brown, paler along postero-lateral margin and adjacent to sutures; scutellum brown dark-bordered. Coxae brown. Femora brown in basal half, pale brown in distal half and each with a narrow brown ring just before distal end. Tibiae banded in brown and pale brown. First tarsal segment brown basally fading to pale brown distally; second and third segments brown. Forewing (fig. 1) colourless hyaline, faintly marked with pale brown areas, the marks at the nodulus and around  $Cu_{1b}$  a little darker. End section of  $R_1$  expanded with strongly chitinized dark brown mark; distal section of  $Sc$  similarly expanded but less so. Veins brown with stigmapophysis colourless and with whole of  $Cu_{1b}$  and the veins adjacent to  $Rs$  and  $M$  junction pale for a short length. Hindwings colourless hyaline; veins brown. Abdomen pale brown; terminal structures, especially paraprocts, darker.

*Morphology:* Length of body 4.2 mm. Head long, due to elongation of frons and epicranial plates. Median epicranial suture very distinct as far as level with lower margin of compound eyes; beyond this hardly visible; anterior arms evanescent. Vertex tall and narrow but rounded; each epicranial plate raised into a small knob near the compound eye; the knobs bear a few small setae. Frons flat with a few small setae, scattered, those adjacent to epistomial suture being a little longer than others. Postclypeus small and not very bulbous: anterior margin curved back medially to accommodate the slightly angular posterior margin of the labrum. Antennae fine, sparsely setose, first flagellar segment outwardly curved. Length of antenna 5.0 mm. Lengths of antennal segments:  $f_1$  : 0.625 mm (measured in a straight line);  $f_2$  : 0.575 mm. Eyes large, reaching about level of middle of vertex when viewed from the side.  $IO/D = 1.4$ ;  $PO = 0.8$ . Three ocelli present, fairly widely spaced, the median ocellus only a little anterior to the lateral ocelli. Lacinia as in fig. 3. Lengths of maxillary palpi segments: 1st 0.05 mm; 2nd 0.25 mm; 3rd 0.17 mm; 4th 0.31 mm. Maxillary palpi long, second segment with sensillum. Measurements of hind leg:  $F$  : 1.0 mm;  $T$  : 1.5 mm;  $t_1$  : 1.05 mm;  $t_2$  : 0.10 mm;  $t_3$  : 0.12 mm;  $rt$  : 10.5 : 1.0 : 1.2. Coxal stridulatory organ small. Claws long and little curved with preapical tooth. Pulvillus very short and stout. Forewing length 3.9 mm, width 1.5 mm. Antenna length: forewing length about 1.3 : 1.0. Forewings (fig. 1) broad, rounded. Membrane well beset with microtrichia. Basal section of  $Sc$  short, curving to meet  $R$ ; distal section of  $Sc$  a little expanded towards the wing margin;  $R_1$  strongly broadened near wing margin. Pterostigmal area short and broad. Stigmapophysis large, flat, flap-like, with a series of fine transverse ridges.  $Rs$  and  $M$  joined by a very short evenescent cross-vein. Areola postica short;  $Cu_{1a}$  curved, meeting wing margin at right angles.  $2A$  running into wing margin, not fusing distally with  $1A$ . Scales absent from body and wings; veins with very fine, short setae, widely spaced, not easily seen. Wing margin glabrous. Hindwing length 2.85 mm., width: 1.0 mm. Hindwings broad with rounded apex.  $Sc$  short, ending free. No basal cell, i.e. basal section of  $Rs$  absent (although in one wing of holotype a short spur-vein indicates its position).  $M$  not branched.  $1A$  ending free, not reaching wing margin. Wings glabrous. Epiproct lightly sclerotized, simple, rounded behind with scattered setae, some longer than others. Paraprocts almost rectangular, well sclerotized except at ventral and dorsal extremities. A small trichobothrial field present with a central

seta much larger than others. Body of paraproct setose. Subgenital plate (fig. 5) simple with strongly developed T-shaped sclerite, setose. Gonapophyses (fig. 2) as usual in the family but basal projection of external valve strongly exaggerated, No sclerifications of orifice of spermatheca seen.

MALE. Unknown.

*Material examined:* SOUTHERN RHODESIA: ♀-Holotype, Chirinda forest, 6-8.VII.1957 (A. S. Smithers); one ♀-paratype and one nymph, Tandaai (Cashel District), 18.XII.1958 (A. S. Smithers). Holotype will be deposited in the British Museum (Nat. Hist.), London, paratype in Australian Museum, Sydney.

# DISCUSSION

*Manicapsocus* belongs to the subfamily Electrentominae Enderlein, (1911), but vein 2A in the forewing runs to the wing margin and does not fuse with 1A as it does in *Electrentomum* Enderlein. Roesler (1944) regards *Parelectrentomum* Roesler, 1940, as a subgenus of *Electrentomum* differing from the latter in having a closed radial cell in the hindwing. *Manicapsocus* has an open radial cell in the hindwing. It is probably preferable to regard *Electrentomum* and *Parelectrentomum* as distinct genera for the present with *Manicapsocus* forming a third genus in the Electrentominae, at the same time modifying the definition of the subfamily to include scaleless Amphientomidae with both types of relationship between 1A and 2A. Both *Electrentomum* and *Parelectrentomum* are monotypic genera being known only from Baltic Amber. *Manicapsocus alettae* is, therefore, an existing African species belonging to an otherwise Baltic Amber subfamily, the genera of which may be identified by means of the following key.

## Key to the genera of ELECTRENTOMINAE

1. 1A and 2A fusing distally ..... 2  
2A running to wing margin ..... **Manicapsocus**
2. Hindwing with closed radial cell ..... **Parelectrentomum**  
Hindwing with radial cell open ..... **Electrentomum**

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